

Claims

What is claimed is:

1. Apparatus for storing ice in a storage bin and for dispensing ice from a storage bin, comprising:
 - (a) a storage bin for receiving pieces of ice therein;
 - (b) ice agitation means for engaging ice pieces and agitating them, to loosen ice pieces from adherence to each other;
 - (c) ice dispenser means for engaging pieces of ice and delivering them to a dispenser outlet for dispensing ice from the storage bin;
 - (d) first drive means for driving the ice agitation means;
 - (e) second drive means for driving the ice dispenser means; and
 - (f) wherein said first and second drive means are separate from each other.
2. The apparatus of claim 1, wherein said first drive means is provided with periodic first activation means for periodically activating the first drive means for periodically agitating the ice.
3. The apparatus of claim 2, wherein said periodic first activation means comprises timer means.

4. The apparatus of claim 1, wherein the second drive means comprises second activation means for activating the second drive means when the ice dispensing means is desired to be operated.
5. The apparatus of claim 1, wherein the ice agitation means comprises first, upper, agitation means and second, lower, agitation means, each carried in the storage bin; with the first, upper agitation means comprising means facilitating delivery of ice pieces to the second, lower, agitation means; and with second, lower agitation means comprising means facilitating delivery of ice to the ice dispenser means.
6. The apparatus of claim 1, wherein the ice agitation means comprises at least one rotating bar having right and left auger means carried thereby, each comprising means for urging ice pieces toward the opposite auger.
7. The apparatus of claim 6, wherein said right and left auger means are carried by the same rotating bar and comprises means whereby thrust loads resulting from urging ice pieces toward an opposite auger are caused to oppose each other within the same rotating bar.
8. The apparatus of claim 6, wherein both upper and lower agitation means each comprises a rotating bar having right and left auger means carried

thereby, each comprising means for urging ice pieces toward the opposite auger.

9. The apparatus of claim 8, wherein said right and left auger means are carried by the same rotating bar and comprise means whereby thrust loads resulting from urging ice pieces toward an opposite auger are caused to oppose each other within the same rotating bar.
10. The apparatus of claim 1, wherein said ice dispenser means comprises means for lifting ice pieces from a lower location in the storage bin to an upper location where the dispenser outlet is located.
11. The apparatus of claim 10, wherein the dispenser means comprises a dispenser tube and a dispenser auger, carried in said tube, for lifting ice pieces through said tube.
12. The apparatus of claim 1, wherein the ice agitation means and the ice dispenser means each include rotationally driven augers mounted for rotation at approximately right angles to each other.
13. The apparatus of claim 11, wherein the dispenser auger is mounted at an acute angle to the vertical, of approximately 45°.

14. The apparatus of claim 1, wherein the dispenser outlet comprises at least one dispenser chute, angularly adjustable for adjustably positioning the chute for filling variously configured containers for receiving ice pieces therefrom.
15. The apparatus of claim 1, wherein the bin includes internal side, front and back wall means, at least some of which are shaped to facilitate movement of ice pieces from the front wall toward a central location of the back wall, wherein said ice dispenser means comprises means for lifting ice pieces from a lower location in the storage bin to an upper location where the dispenser outlet is located, wherein the dispenser means comprises a dispenser tube and a dispenser auger, carried in said tube, for lifting ice pieces through said tube, and with the dispenser tube having an inlet opening located near the back wall means of the bin, generally midway between the side wall means of the bin, for receiving ice pieces therein.
16. The apparatus of claim 1, including a container support carried on the bin, for supporting a container for receiving ice pieces dispensed from the dispenser outlet.
17. The apparatus of claim 16, wherein said support is pivotally adjustable from a location beneath said dispenser outlet to a location removed from

beneath said dispenser outlet, for facilitating placement of a cart beneath said outlet and the receipt of ice into a cart placed therebeneath.

18. Apparatus for storing ice, comprising upper and lower storage bins, the upper storage bin having walls that are tapered from upper ends to lower ends thereof, such that the walls at the lower end define a larger opening than that defined by the walls at the upper end, whereby the walls are sufficiently tapered to facilitate gravity discharge of ice from the upper bin and to resist ice bridging therein.
19. The apparatus of claim 18, wherein the angle of taper of the walls is approximately 2° with the vertical.
20. Apparatus for storing ice, comprising upper and lower storage bins, wherein the lower bin has a bottom that is shaped to facilitate movement of ice to a generally centered dispensing location.
21. Apparatus for storing ice in a storage bin and for dispensing ice from a storage bin comprising;
 - (a) a storage bin for receiving pieces of ice therein;
 - (b) ice agitation means for engaging ice pieces and agitating them, to loosen ice pieces from adherence to each other;

- (c) ice dispenser means for engaging pieces of ice and delivering them to a dispenser outlet for dispensing ice from the storage bin;
- (d) drive means for driving the ice agitation means and the ice dispenser means;
- (e) with said drive means including shafts and bearing mounts for those shafts; with the storage bin having clearance holes for passing of shafts therethrough, with the shafts being free of support from the storage bin; and with a storage bin frame structure for carrying and supporting the bearing mounts for the shafts, separate from the storage bin.

22. The apparatus of claim 1, wherein said first drive means is provided with periodic first activation means for periodically activating the first drive means for periodically agitating the ice. wherein the second drive means comprises second activation means for activating the second drive means when the ice dispensing means is desired to be operated, wherein the ice agitation means comprises first, upper agitation means and second, lower, agitation means, each carried in the storage bin; with the first, upper agitation means comprising means facilitating delivery of ice pieces to the second, lower, agitation means; and with second, lower agitation means comprising means facilitating delivery of ice to the ice dispenser means, wherein the ice agitation means comprises at least one rotating bar having right and left auger means carried thereby each comprising means for

urging ice pieces toward the opposite auger, wherein said right and left auger means are carried by the same rotating bar and comprises means whereby thrust loads resulting from urging ice pieces toward an opposite auger are caused to oppose each other within the same rotating bar, wherein both upper and lower agitation means each comprises a rotating bar having right and left auger means carried thereby, each comprising means for urging ice pieces toward the opposite auger, wherein the ice agitation means and the ice dispenser means each include rotationally driven augers mounted for rotation at approximately right angles to each other, wherein the dispenser outlet comprises at least one dispenser chute, angularly adjustable for adjustably positioning the chute or filling variously configured containers for receiving ice pieces therefrom, wherein the bin includes internal side, front and back wall means, at least some of which are shaped to facilitate movement of ice pieces from the front wall toward a central location of the back wall, wherein said ice dispenser means comprises means for lifting ice pieces from a lower location in the storage bin to an upper location where the dispenser outlet is located, wherein the dispenser means comprises a dispenser tube and a dispenser auger, carried in said tube, for lifting ice pieces through said tube, and with the dispenser tube having an inlet opening located near the back wall means of the bin, generally midway between the side wall means of the bin, for receiving ice pieces therein, including a container support carried on the bin, for supporting a container for receiving ice

pieces dispensed from the dispenser outlet, and wherein said support is pivotally adjustable from a location beneath said dispenser outlet to a location removed from beneath said dispenser outlet, for facilitating placement of a cart beneath said outlet and the receipt of ice into a cart placed therebeneath.